

Inventor(s): GÖRL *et al.*

Application No.: 09/576,179

Attorney Docket No.: 021123-0268103

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in this application:

Claims 1-18: cancelled.

Claim ~~18~~¹ (new) A rubber powder, containing one or more oxidic or siliceous fillers, comprising at least one member selected from the group consisting of synthetic fillers in an amount of 400 phr to 5000 phr and naturally occurring fillers in an amount of 400 phr to 5000 phr; and

carbon black in an amount of 400 phr to 5000 phr, wherein the total amount of the fillers and carbon black does not exceed 5000 phr;

wherein the surface of said oxidic or siliceous fillers is modified with one or more organosilicon compounds of the formulae:



or



in which:

B^1 : represents -SCN, -SH -Cl, NH_2 (when $q = 1$) or $-S_x-$ (when $q = 2$),

R : represents an alkyl group with 1 to 4 carbon atoms, branched or unbranched, or a phenyl group, wherein all the groups R ,

R^1 : represents a C_1 - C_4 -alkyl or C_1 - C_4 -alkoxy group, branched or unbranched, or a phenyl group, wherein all the groups R^1 may be identical or different,

n : is 0, 1 or 2,

Alk : represents a divalent straight or branched hydrocarbon group with 1 to 6 carbon atoms,

m : is 0 or 1,

Ar : represents an aryene group with 6 to 12 carbon atoms,

p : is 0 or 1, with the proviso that p , m and n are not simultaneously 0,

x : is a number from 2 to 8,

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Alkyl: represents a monovalent straight or branched saturated hydrocarbon group with 1 to 20 carbon atoms,

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with 2 to 20 carbon atoms,

wherein said rubber powder is prepared by the addition of the fillers to latex in one step,

wherein the fillers are added as a filler suspension with a suspension density of from 0.5% to 10% with respect to the fillers, and

wherein said powder is coated with a layer of polystyrene, polystyrene/butadiene copolymers, polyethylenes or polypropylenes.

Claim ~~20~~² (new) The rubber powder according to claim ~~19~~¹, further comprising one or more processing or vulcanizing aids selected from the group consisting of zinc oxide, zinc stearate, stearic acid, polyalcohols, polyamines, plasticizer, anti-aging agents, reinforcing resins, flame retardant and sulfur.

Claim ~~21~~³ (new) The rubber powder according to claim ~~20~~², wherein the flame retardant comprises $\text{Al}(\text{OH})_3$ or $\text{Mg}(\text{OH})_2$.

Claim ~~22~~⁴ (new) The rubber powder according to claim ~~19~~¹, wherein said powder comprises particles that range in size from 25 μm to 3000 μm .

Claim ~~23~~⁵ (new) The rubber powder according to claim ~~19~~¹, wherein said one or more organosilicon compounds comprise a compound of formula (II), and wherein

Alkyl: represents a monovalent straight or branched saturated hydrocarbon group with 2 to 8 carbon atoms.

Claim ~~24~~⁶ (new) The rubber powder according to claim ~~19~~¹, wherein said one or more organosilicon compounds comprise a compound of formula (III), and wherein

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with preferably 2 to 8 carbon atoms.

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~~Claim 25~~⁷ (new) A rubber powder granulate comprising the rubber powder according to claim 19, wherein said granulate comprises particles that range in size from 2 mm to 10 mm.

~~Claim 26~~⁸ (new) A rubber powder, containing one or more oxidic or siliceous fillers, comprising at least one member selected from the group consisting of synthetic fillers in an amount of 400 phr to 5000 phr and naturally occurring fillers in an amount of 400 phr to 5000 phr; and

carbon black in an amount of 400 phr to 5000 phr, wherein the total amount of the fillers and carbon black does not exceed 5000 phr;

wherein the surface of said oxidic or siliceous fillers is modified with one or more organosilicon compounds of the formulae:



or



in which:

B¹: represents -SCN, -SH, -Cl, NH₂ (when q = 1) or -S_x- (when q = 2),

R: represents an alkyl group with 1 to 4 carbon atoms, branched or unbranched, or a phenyl group, wherein all the groups R,

R¹: represents a C₁-C₄-alkyl or C₁-C₄-alkoxy group, branched or unbranched, or a phenyl group, wherein all the groups R¹ may be identical or different,

n: is 0, 1 or 2,

Alk: represents a divalent straight or branched hydrocarbon group with 1 to 6 carbon atoms,

m: is 0 or 1,

Ar: represents an arylene group with 6 to 12 carbon atoms,

p: is 0 or 1, with the proviso that p, m and n are not simultaneously 0,

x: is a number from 2 to 8,

Alkyl: represents a monovalent straight or branched saturated hydrocarbon group with 1 to 20 carbon atoms,

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with 2 to 20 carbon atoms,

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wherein said rubber powder is prepared by the addition of the fillers to latex in one step, and wherein the fillers are added as a filler suspension with a suspension density of from 0.5% to 10% with respect to the fillers wherein said powder comprises particles that range in size from 25 μm to 3000 μm .

Claim 27. (new) The rubber powder according to claim 26, wherein said powder is coated with a layer of polystyrene, polystyrene/butadiene copolymers, polyethylenes or polypropylenes.

Claim 28. (new) The rubber powder according to claim 26, further comprising one or more processing or vulcanizing aids selected from the group consisting of zinc oxide, zinc stearate, stearic acid, polyalcohols, polyamines, plasticizer, anti-aging agents, reinforcing resins, flame retardant and sulfur.

Claim 29. (new) The rubber powder according to claim 28, wherein the flame retardant comprises $\text{Al}(\text{OH})_3$ or $\text{Mg}(\text{OH})_2$.

Claim 30. (new) The rubber powder according to claim 26, wherein said one or more organosilicon compounds comprise a compound of formula (II), and wherein

Alkyl: represents a monovalent straight or branched saturated hydrocarbon group with 2 to 8 carbon atoms.

Claim 31. (new) The rubber powder according to claim 26, wherein said one or more organosilicon compounds comprise a compound of formula (III), and wherein

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with preferably 2 to 8 carbon atoms.

Claim 32. (new) A rubber powder granulate comprising the rubber powder according to claim 26, wherein said granulate comprises particles that range in size from 2 mm to 10 mm.

Claim 33. (new) A rubber powder granulate comprising a rubber powder, containing one or more oxidic or siliceous fillers, comprising at least one member selected from the group

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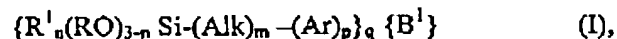
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consisting of synthetic fillers in an amount of 400 phr to 5000 phr and naturally occurring fillers in an amount of 400 phr to 5000 phr; and

carbon black in an amount of 400 phr to 5000 phr, wherein the total amount of the fillers and carbon black does not exceed 5000 phr;

wherein the surface of said oxidic or siliceous fillers is modified with one or more organosilicon compounds of the formulae:



or



in which:

B^1 : represents -SCN, -SH -Cl, NH_2 (when $q = 1$) or $-S_x-$ (when $q = 2$),

R : represents an alkyl group with 1 to 4 carbon atoms, branched or unbranched, or a phenyl group, wherein all the groups R ,

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$Alkyl$: represents a monovalent straight or branched saturated hydrocarbon group with 1 to 20 carbon atoms,

$Alkenyl$: represents a monovalent straight or branched unsaturated hydrocarbon group with 2 to 20 carbon atoms,

wherein said rubber powder is prepared by the addition of the fillers to latex in one step, and wherein the fillers are added as a filler suspension with a suspension density of from 0.5% to 10% with respect to the fillers

wherein said granulate comprises particles that range in size from 2 mm to 10 mm..